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International patent application PCT/IB03/01829
Nokia Corporation et al.

Dear Sirs,

in response to the Written Opinion of the IPEA, dated April 13, 2005, an amended set of claims if provided. It is kindly requested to continue with the international preliminary examination of the above-referenced patent application based on this amended set of claims.

I. Amended Claims

To overcome the objections of the IPEA concerning novelty and inventiveness of the original set of claims, the following amendments were performed:

- The features of original method claims 1 and 3 were merged into amended independent method claim 1. Original dependent method claims 2 and 3 were deleted. Amended method claims 2-18 correspond to original method claims 4-20, respectively.
- Amended independent method claim 19 contains the features of original method claim 1 and the feature that acknowledgement is

performed manually, which is for instance disclosed on p. 6, l. 14-18 and p. 16, l. 6-15 of the patent application.

- The features of original system claims 21 and 23 were merged into amended independent system claim 20. Original dependent system claims 22 and 23 were deleted. Amended system claims 21-32 correspond to original system claims 24-35, respectively.
- Amended independent system claim 33 contains the features of original system claim 21 and the feature that acknowledgement is performed manually, which is for instance disclosed on p. 10, l. 9-13 and p. 16, l. 6-15 of the patent application.
- Amended computer program product claim 34 corresponds to original computer program product claim 36.
- In all independent claims, two-part form was found rather inappropriate and thus replaced by one-part form.

II. Subject-matter of the Present Patent Application

The present patent application relates to methods, systems and a computer program product for navigating within a navigation area. Navigation is based on navigation tags that have been mounted at predetermined positions within a navigation area. Basically, all embodiments according to the present invention comprise means for determining a sequence of navigation tags, which are associated with a desired route within the navigation area, based on said positions of the navigation tags and on topographic information on the navigation area, and means for acknowledging the passing of a navigation tag, when said route is navigated by passing navigation tags of said sequence of navigation tags.

Amended independent claims 1 and 20 are directed to an embodiment (see Fig. 2) that comprises a mobile navigation unit 6 and a host unit 17. Therein, the mobile navigation unit 6 comprises storage units 7 and 8 for storing navigation tag positions and topography information, which can for instance be retrieved from host unit 17 via interfaces 9, 10, 20 and 21. The mobile navigation unit 6 further comprises a microprocessor 11 that is capable of receiving route inputs from an input unit 12, performing routing tasks based on said route inputs, on the contents of the navigation tag position storage unit 7 and the topography storage unit 8, receiving and processing acknowledgements from an RF unit 13, and operating a display controller 14. The possibility of altering the navigation tag positions and the topography information in the mobile navigation unit 6 vastly increases flexibility of the mobile navigation unit, it particularly allows for a deployment of the mobile navigation unit in different navigation areas.

Amended independent claims 3 and 22 are directed to an embodiment (see Fig. 3) in which the mobile navigation unit 6 does not comprise storage units for navigation tag positions and topography information. In contrast to the previous embodiment, the determination of the route then

is not performed by the mobile navigation unit 6, but by a separate device such as a host unit 17. The mobile navigation unit then is only furnished with a sequence of navigation tags that should be passed when navigating a route, and the low-complexity microprocessor 26 in the navigation unit 6 then only performs the tasks of receiving acknowledgements from the RF unit 13 and triggering the display controller to display routing information in response to the acknowledgements received.

Amended independent claims 19 and 33 are directed to an embodiment (see Figs. 1-3), in which passing of a navigation tag is manually acknowledged by the user. The use of RF tags as navigation tags and of an RF unit in the mobile navigation unit then becomes obsolete, and the navigation system becomes less complex, less expensive and less error-prone. An example of navigation tags that could be used in this embodiment are signs, wherein a user, when passing such a sign, acknowledges passing of the sign via the input unit 12 of the mobile navigation unit 6, for instance by pressing an acknowledgement button.

III. Prior Art

Prior art document D1 (US 2003 080901 A1) discloses a navigation system that includes at least one RF tag 14 having a predetermined signature 17 (see Figs. 1 and 2 of D1). A receiver including an RF tag reader 21 is used to read the predetermined signature. The receiver contains a controller 26, a memory 25 and an output device 27. The controller 26 is arranged to receive the predetermined signature 17 from an RF tag 14, based upon the predetermined signature, obtain at least one navigation instruction stored in the memory 25, and output the navigation instruction using the output device 27 (see paragraph [0019]). The signature 17 of each RF tag 14 is associated with a location of the respective RF tag 14. Navigation information 24 related to all RF tag 14 locations is stored in memory 25. For example, the navigation information 24 may include a digital map of the building complex or region. The locations of the RF tags 14 would be identified in the digital map. Using the signature 17 from one or more RF tags 14 and the navigation information 24, the current position of a user can be determined. Based on the current position, instructions can be provided to the user to reach a specific location (see paragraph [0032]). Therein, the overall processing of the signatures 17 and the navigation instructions 24 is performed by a CPU 26 or controller (see paragraph [0033]).

Prior art document D2 (US 2003 014186 A1) discloses a position detection device and method. Fig. 2 of D2 depicts a block diagram of the device architecture. The radio frequency identification transceiver 100 stimulates RFID tags 110 and 120 and reads data from the RFID tags (see paragraph [0033]). RFID communications interface 200 reads data from the RFID transceiver 100 and provides location data to the position determination 210 and the command manager 230 (see paragraph [0034]). Position Determination 210 translates the location data received from the RFID communications interface 200 into a known position and specific location data. It then passes this

position data to the path process 220, where the new position is used to plot the user progress along the current calculated path. The path process 220 sends data to the command manager 230 to notify the user 140 of current location and issue suggestions to change direction. When the user 140 makes a request to go to a destination, the command manager 230 issues a request to the path process 220 to either plot a new path using data from the path database 250, or retrieve a stored user path from the path database 250 (see paragraph [0035]).

IV. Novelty of the Amended Claims

1. Amended Independent Claims 1 and 20

None of the prior art documents D1 and D2 discloses all features of amended independent claims 1 and 20.

D1 does not disclose the feature of amended independent claims 1 and 20 that a sequence of navigation tags is determined, and that said route is navigated by passing navigation tags of said sequence of navigation tags. According to paragraph [0032] of D1, each RF tag, upon being triggered, responds with an information signal that contains a unique code (signature), wherein this signature is associated with the location of the respective RF tag. The navigation information related to all RF tag locations is stored in a memory, and may for instance include a digital map of the building complex or region. The locations of the RF tags would be identified in the digital map. Using the unique code from one or more RF tags and the navigation information, the current position of the user can be determined. Based upon the current position, instructions can be provided to the user to reach a specific location. An example for such navigation instructions are described with reference to Fig. 3 in paragraph [0045] of D1, wherein light sources seem to serve as locations for RF tags. The navigation instructions given, for instance „proceed south or continue straight", are not related to the next RF tag, but only to a general direction. Furthermore, there is obviously no fixed sequence of RF tags that have to be passed to navigate the route, because at least the first navigation instruction provided to the user allows for different paths, the first path „proceeding south", and the second path „continuing straight". The system of D1 thus obviously uses the RF tags to update the current user location and as a trigger for issuing a new navigation instruction, but this navigation instruction is always directed to the final destination only, and not to the next RF tag on a fixed route composed of RF tags.

It is furthermore noted that D1 does not disclose the feature of amended independent claims 1 and 20 that said positions and topographic information, which are first stored in said host unit, are stored in said mobile navigation unit after their transfer between said host unit and said mobile navigation unit. Fig. 2 and paragraphs [0038] and [0039] of D1 only disclose the retrieval of navigation information from a remote device 29. This remote device 29 can be considered as the „host device" of amended independent claims 1 and 20 of the present patent application, and the navigation

information can be considered as „stored positions and topographic information" that is transferred between the „host device" and the „mobile navigation unit". Storage of this navigation information after its retrieval in the receiver 20 (the „mobile navigation unit") is however not disclosed in D1.

D2 does not disclose the feature of amended independent claims 1 and 20 that said positions and said topographic information are stored in a host unit and transferred to and stored in a mobile navigation unit. This is due to the fact that D2 does not disclose the use of separate units, such as a host unit and a mobile navigation unit, and thus the transfer of positions/topographic information between such units as demanded by claim 3 and the transfer of a sequence of navigation tags between such units as demanded by claim 5 is not possible at all.

Amended independent claims 1 and 20 are thus novel with respect to D1 and D2.

2. Amended Independent Claims 3 and 22

D1 does not disclose the feature of amended independent claims 3 and 22 that a sequence of navigation tags is determined, and that said route is navigated by passing navigation tags of said sequence of navigation tags (see section IV.1 above).

D2 does not disclose the feature of amended independent claims 1 and 20 that said positions and said topographic information are stored in a host unit, and that said sequence of navigation tags, as determined by said host unit, is transferred to and stored in a mobile navigation unit. As already stated in the previous section, this is due to the fact that D2 does not disclose the use of separate units, such as a host unit and a mobile navigation unit.

Amended independent claims 3 and 22 are thus novel with respect to D1 and D2.

3. Amended Independent Claims 19 and 33

Both prior art documents D1 and D2 are exclusively related to RF tags with automatic acknowledgement of the passing of RF tags. Manual acknowledgement, as demanded by amended independent claims 19 and 33 of the present patent application is however not disclosed.

Amended independent claims 19 and 33 are thus novel with respect to D1 and D2.

V. Inventiveness of the Amended Claims

1. Amended Independent Claims 1 and 20

The skilled person, when setting out from the navigation system of D2 (in which system the positions of the navigation tags and the topographic information on the navigation area are stored in the

mobile navigation unit) and intending to make this system more flexible, may consult the disclosure of prior art document D1.

However, D1 only teaches the skilled person to retrieve navigation information from a remote unit „on-line" (for instance to save memory in the mobile navigation unit), but there is no hint in D1 that it may be advantageous to store such navigation information in the mobile navigation unit after its retrieval from the remote server (see section IV.1 above). This detail however relates to a gist of the embodiment of the present invention according to amended independent claims 1 and 20. According to this embodiment, when entering or approaching a new navigation area, position information and topographic information is fetched from a remote site and then stored in the mobile navigation unit. This ensures independence of the mobile navigation unit from the remote site as soon as the transfer of information has completed, because the mobile navigation unit is capable of determining navigation routes based on the position information and the topographic information by itself. A possible use case of this embodiment according to the present invention is a museum as navigation area, and a mobile phone as mobile navigation unit. When entering the museum, the mobile phone is loaded with the positions of the navigation points and the topographic information on the museum, which may for instance take place at the entry of the museum at a service desk (transfer may for instance be accomplished by connecting said mobile phone to a server by means of a wired or short-range wireless connection).

Amended independent claims 1 and 20 are thus not rendered obvious by a combination of prior art documents D1 and D2 and are thus inventive.

2. Amended Independent Claims 3 and 22

With respect to amended independent claims 3 and 22, it is noted that prior art document D1 does not disclose to perform the determination of the actual route (composed of a sequence of navigation tags) at the remote site and then to transfer only this determined route to the receiver. As stated in paragraph [0032] of D1, the navigation information is related to all RF tag locations, and may include a digital map of the building complex or region. Only this general navigation information is transferred between the remote site and the receiver, so that the „navigation information" can not be interpreted as the „sequence of navigation tags" according to amended independent claims 3 and 22 of the present patent application.

Similarly, also paragraph [0036] of D1 is not suited to disclose the idea of passing a sequence of navigation tags representing a route between a host unit, which generates said sequence, and a mobile navigation unit. The cited paragraph only discloses that the output device 27 of the receiver may be a separate device coupled to the CPU 26 of the receiver, and that this output device may be a cellular phone. This „output device" according to D1 includes a variety of audio and visual units, but

is not capable of processing a sequence of navigation tags, because it does not contain an own microprocessor for processing the sequence of navigation tags and an own (RF) interface for interacting with navigation tags. Thus even when the „host unit" of amended independent claims 3 and 22 is identified as the receiver of D1, and the „mobile navigation unit" of amended independent claims 3 and 22 is identified as the output device of D1, still the feature that a sequence of navigation tags representing a route is transferred between the receiver and the output device is neither disclosed nor rendered obvious by D1.

As already stated above, D2 fails to disclose the use of separate units, such as a host unit and a mobile navigation unit, at all.

Prior art documents D1 and D2 are thus not suited to render amended independent claims 3 and 22 of the present patent application obvious, and consequently, amended independent claims 3 and 22 are inventive.

3. Amended Independent Claims 19 and 33

As already stated above, both prior art documents D1 and D2 are exclusively related to RF tags with automatic acknowledgement of the passing of RF tags, and do not indicate the possibility to perform manual acknowledgement of passed navigation tags, as demanded by amended independent claims 19 and 33.

Amended independent claims 19 and 33 are thus inventive with respect to D1 and D2.

VI. Final remarks

The IPEA is now kindly requested to continue with the preliminary examination of the present patent application based on the amended set of claims. If there should still arise objections against this amended set of claims, the IPEA is kindly requested to provide a further Written Opinion before issuing the IPER.

Yours faithfully,

Dr. Ralph Schippan

Encl.
Amended Set of Claims (clear copy)
Amended Set of Claims (copy with emphasized amendments)

SC/cw 030229WO
June 6, 2005

CLAIMS

1. Method for navigating within a navigation area (2), wherein a plurality of navigation tags (1) has been mounted at predetermined positions within the navigation area (2), said method comprising the steps of:
- determining (11) a sequence of navigation tags (1), which are associated with a desired route within the navigation area (2), based on the positions (18) of the navigation tags (1) and on topographic information (19) on the navigation area (2); and
- navigating said route by passing navigation tags (1) of said sequence of navigation tags, whereby passing of a navigation tag (1) is acknowledged (12, 13);

wherein said positions (18) are stored in a host unit (17), wherein said host unit (17) further stores topographic information (19) on the navigation area (2), wherein said stored positions (18) and topographic information (19) are transferred to (9, 10, 20, 21) and stored in (7, 8) a mobile navigation unit (6), and wherein said sequence of navigation tags (1) is determined (11) by said mobile navigation unit (6) based on said stored positions (7, 8) and said topographic information (8).

2. Method according to claim 1, characterised in that said transfer of the stored positions (18) and topographic information (19) is performed by means of a wired link (9, 10, 20, 21) between host unit (17)

and mobile navigation unit (6) or by means of a wireless link (9, 10, 20, 21).

3. Method for navigating within a navigation area (2), wherein a plurality of navigation tags (1) has been mounted at predetermined positions within the navigation area (2), said method comprising the steps of:

- determining (22) a sequence of navigation tags (1), which are associated with a desired route within the navigation area (2), based on the positions (18) of the navigation tags (1) and on topographic information (19) on the navigation area (2); and
- navigating said route by passing navigation tags (1) of said sequence of navigation tags, whereby passing of a navigation tag (1) is acknowledged (12);

wherein said positions (18) are stored in a host unit (17), wherein said host unit (17) further stores topographic information (19) on the navigation area (2), wherein said sequence of navigation tags (1) is determined (22) by said host unit (17) based on said stored positions (18) and said topographic information (19), and wherein said sequence of navigation tags (1) is transferred (24, 25) to a mobile navigation unit (6) from the host unit (17).

4. Method according to claim 3, characterised in that said sequence of navigation tags (1) is transferred (24, 25) to said mobile navigation unit (6) from said host unit (17) at once, or in parts, whereby transfer of each part of said sequence of navigation tags (1) is initiated by said acknowledgement (12, 13) of the passing of a navigation tag (1).

5. Method according to claim 4, characterised in that said transfer of the sequence of navigation tags is performed by means of a wired link (24, 25) between host unit (17) and mobile navigation unit (6) or by means of a wireless link (24, 25).

6. Method according to any of the claims 1-5, characterised in that said mobile navigation unit (6) is capable of indicating (16) information on the navigation tag (1) that should be passed next.

7. Method according to claim 6, characterised in that said information on the navigation tag that should be passed next comprises the direction and/or distance to the next navigation tag (1), and/or an identifier of the next navigation tag (1).

8. Method according to claim 7, characterised in that said identifier is a colour and/or a number and/or a symbol.

9. Method according to any of the claims 6-8, characterised in that said information on the navigation tag that should be passed next is indicated optically (16) and/or acoustically and/or haptically.

10. Method according to any of the claims 6-9, characterised in that said acknowledgement of the passing of a navigation tag is performed automatically (13) or manually (12) and updates said indication (16) of the information on the navigation tag (1) that should be passed next.

11. Method according to claim 10, characterised in that said automatic acknowledgement is based on a wireless link between mobile navigation unit (6) and navigation tag (1), such as a radio (15) or optic link.

12. Method according to claim 10, characterised in that said manual acknowledgement is based on a wired connection between mobile navigation unit and navigation tag, or by interaction (12) between the user of the mobile navigation unit and the mobile navigation unit (6).

13. Method according to any of the claims 1-12, characterised in that the navigation tag (1) itself is capable of storing information and that said information is transferred to said mobile navigation unit when the navigation tag is passed.

14. Method according to claim 13, characterised in that such information comprises the position of the navigation tag (1) and/or information on the location within the navigation area (2) where the navigation tag (1) is mounted.

15. Method according to any of the claims 1-14, characterised in that the position of the navigation tags (1) are determined by means of a terrestrial or satellite-based positioning system (3) such as the Global Positioning System (GPS) and/or by maps and/or plans of the navigation area (4).

16. Method according to any of the claims 1-15, characterised in that the mobile navigation unit (6) is integrated into or compatible to a mobile device such as a mobile phone, a personal digital assistant or a GPS receiver.

17. Method according to any of the claims 2-16 as long as they refer back to claim 2, characterised in that the mobile navigation unit (6) is integrated into or compatible to a mobile phone associated with a mobile radio system, that the core network of the mobile radio system can gain access to said host system (17), and that said stored positions (18) and topographic information (19) is transferred to the mobile navigation unit (6) via the air interface of the mobile radio system.

18. Method according to any of the claims 5-16 as long as they refer back to claim 5, characterised in that the mobile navigation unit (6) is integrated into or compatible to a mobile phone associated with a mobile radio system, that the core network of the mobile radio system can gain access to said host system (17), and that said sequence of navigation tags is transferred to the mobile navigation unit via the air interface of the mobile radio system.

19. Method for navigation within a navigation area (2), wherein a plurality of navigation tags (1) has been mounted at predetermined positions within the navigation area (2), said method comprising the steps of:

- determining (11, 22) a sequence of navigation tags (1), which are associated with a desired route within

the navigation area (2), based on the positions (7, 18) of the navigation tags (1) and on topographic information (8, 19) on the navigation area; and

- navigating said route by passing navigation tags (1) of said sequence of navigation tags, whereby passing of a navigation tag (1) is manually acknowledged (12).

20. System for navigating in a navigation area, wherein a plurality of navigation tags (1) has been mounted at predetermined positions within said navigation area (2), said system comprising:

- means for determining a sequence of navigation tags (11, 22), which are associated with a desired route within the navigation area (2), based on said positions (18) of the navigation tags (1) and on topographic information (19) on the navigation area (2); and
- means for acknowledging (12, 13) the passing of a navigation tag (1), when said route is navigated by passing navigation tags (1) of said sequence of navigation tags (1);

wherein said positions (18) are stored in a host unit (17), wherein said host unit (17) further comprises a storage unit with topographic information (19) on the navigation area (2), wherein said host unit (17) and a mobile navigation unit (6) comprise means (9, 10, 20, 21) for transferring said stored positions (18) and topographic information (19) from the host unit (17) to the mobile navigation unit (6), wherein said mobile navigation unit (6) further comprises means (7, 8) for storing said positions (18) and topographic information (19), and wherein said mobile

navigation unit (6) further comprises means (11) for determining the sequence of navigation tags (1) based on said stored positions (7) and said stored topographic information (8).

21. System according to claim 20, characterised in said means (9, 10, 20, 21) for transferring said stored positions (18) and topographic information (19) are capable of establishing a wired link between host unit (17) and mobile navigation unit (6) or a wireless link.

22. System for navigating in a navigation area, wherein a plurality of navigation tags (1) has been mounted at predetermined positions within said navigation area (2), said system comprising:

- means for determining a sequence of navigation tags (11, 22), which are associated with a desired route within the navigation area (2), based on said positions (18) of the navigation tags (1) and on topographic information (19) on the navigation area (2); and
- means for acknowledging (12, 13) the passing of a navigation tag (1), when said route is navigated by passing navigation tags (1) of said sequence of navigation tags (1);

wherein said positions are stored in a storage unit (18) that is comprised in a host unit (17), wherein said host unit (17) further comprises a storage unit with topographic information (19) on the navigation area (2), wherein said host unit (17) further comprises means (22) for determining the sequence of navigation tags (1) based on the contents of both

storage units (18, 19), and wherein said host unit (17) and said mobile navigation unit (6) comprise means (24, 25) for transferring said sequence of navigation tags (1) from the host unit (17) to the mobile navigation unit (6).

23. System according to claim 22, characterised in that said means (24, 25) for transferring said sequence of navigation tags (1) are capable of establishing a wired link between host unit (17) and mobile navigation unit (6) or a wireless link.

24. System according to any of the claims 20-23, characterised in that said mobile navigation unit (6) comprises means (16) for indicating information on the navigation tag (1) that should be passed next.

25. System according to claim 24, characterised in that said means for indicating information on the navigation tag that should be passed next comprises optic (16) and/or acoustic and/or haptic means.

26. System according to any of the claims 24-25, characterised in that means are provided for automatic (13) or manual acknowledgement (12) of the passing of a navigation tag (1), and that means are provided to update said indication (16) of the information on the navigation tag (1) that should be passed next.

27. System according to claim 26, characterised in that said automatic acknowledgement is based on a wireless link between mobile navigation unit (6) and

navigation tag (1), such as a radio (15) or optic link.

28. System according to claim 26, characterised in that said manual acknowledgement is based on a wired connection between mobile navigation unit (6) and navigation tag (1), or on means (12) enabling an interaction between the user of the mobile navigation unit (6) and the mobile navigation unit (6).

29. System according to any of the claims 20-28, characterised in that the navigation tag (1) itself comprises means for storing information, and that both navigation tag (1) and mobile navigation unit (6) comprise means for transferring said information from the navigation tag (1) to the mobile navigation unit (6) when the navigation tag (1) is passed.

30. System according to any of the claims 20-29, characterised in that the mobile navigation unit (6) is integrated into a mobile device such as a mobile phone, a personal digital assistant or a GPS receiver.

31. System according to any of the claims 21-30 as long as they refer back to claim 21, characterised in that the mobile navigation unit (6) is integrated into or compatible to a mobile phone associated with a mobile radio system, that the core network of the mobile radio system can gain access to said host system (17), and that said stored positions (18) and topographic information (19) are transferred to the mobile navigation unit (6) via the air interface of the mobile radio system.

32. System according to any of the claims 23-30 as long as they refer back to claim 23, characterised in that the mobile navigation unit (6) is integrated into or compatible to a mobile phone associated with a mobile radio system, that the core network of the mobile radio system can gain access to said host system (17), and that said sequence of navigation tags (1) is transferred to the mobile navigation unit (6) via the air interface of the mobile radio system.

33. System for navigating in a navigation area, wherein a plurality of navigation tags (1) has been mounted at predetermined positions within said navigation area (2), said system comprising:

- means for determining a sequence of navigation tags (11, 22), which are associated with a desired route within the navigation area (2), based on said positions (18) of the navigation tags (1) and on topographic information (19) on the navigation area (2); and
- means for manually acknowledging (12) the passing of a navigation tag (1), when said route is navigated by passing navigation tags (1) of said sequence of navigation tags (1).

34. A computer program product directly loadable into the internal memory of a digital computer, comprising software code portions for performing the steps of any of the claims 1-19 when said product is run on a computer.

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June 6, 2005

CLAIMS

1. Method for navigating within a navigation area (2), wherein a plurality of navigation tags (1) has been mounted at predetermined positions within the navigation area (2), ~~characterised in that the method comprises~~ said method comprising the steps of:
- determining (11~~, 22~~) a sequence of navigation tags (1), which are associated with a desired route within the navigation area (2), based on the positions (~~7,~~ 18) of the navigation tags (1) and on topographic information (~~8,~~ 19) on the navigation area (2); and
- navigating said route by passing navigation tags (1) of said sequence of navigation tags, whereby passing of a navigation tag (1) is acknowledged (12, 13);~~.~~

wherein said positions (18) are stored in a host unit (17), wherein said host unit (17) further stores topographic information (19) on the navigation area (2), wherein said stored positions (18) and topographic information (19) are transferred to (9, 10, 20, 21) and stored in (7, 8) a mobile navigation unit (6), and wherein said sequence of navigation tags (1) is determined (11) by said mobile navigation unit (6) based on said stored positions (7, 8) and said topographic information (8).

~~2. Method according to claim 1, characterised in that said positions (7) are stored in a mobile navigation unit (6), that said mobile navigation unit (6) further stores topographic information (8) on the navigation area (2) and that said sequence of navigation tags (1) is determined (11) by said mobile~~

~~navigation unit (6) based on said stored positions (7) and said topographic information (8).~~

~~3. Method according to claim 1, characterised in that said positions (18) are stored in a host unit (17), that said host unit (17) further stores topographic information (19) on the navigation area (2), that said stored positions (18) and topographic information (19) are transferred to (9, 10, 20, 21) and stored in (7, 8) a mobile navigation unit (6), and that said sequence of navigation tags (1) is determined (11) by said mobile navigation unit (6) based on said stored positions (7, 8) and said topographic information (8).~~

~~4~~2. Method according to claim ~~3~~1, characterised in that said transfer of the stored positions (18) and topographic information (19) is performed by means of a wired link (9, 10, 20, 21) between host unit (17) and mobile navigation unit (6) or by means of a wireless link (9, 10, 20, 21).

~~5~~3. Method for navigating within a navigation area (2), wherein a plurality of navigation tags (1) has been mounted at predetermined positions within the navigation area (2), said method comprising the steps of~~characterised in that the method comprises the steps of~~:

- determining (~~11,~~ 22) a sequence of navigation tags (1), which are associated with a desired route within the navigation area (2), based on the positions (~~7,~~ 18) of the navigation tags (1) and on topographic information (~~8,~~ 19) on the navigation area (2); and

- navigating said route by passing navigation tags (1) of said sequence of navigation tags, whereby passing of a navigation tag (1) is acknowledged (12~~, 13~~);

wherein said positions (18) are stored in a host unit (17), wherein said host unit (17) further stores topographic information (19) on the navigation area (2), wherein said sequence of navigation tags (1) is determined (22) by said host unit (17) based on said stored positions (18) and said topographic information (19), and wherein said sequence of navigation tags (1) is transferred (24, 25) to a mobile navigation unit (6) from the host unit (17).

~~6~~4. Method according to claim ~~5~~3, characterised in that said sequence of navigation tags (1) is transferred (24, 25) to said mobile navigation unit (6) from said host unit (17) at once, or in parts, whereby transfer of each part of said sequence of navigation tags (1) is initiated by said acknowledgement (12, 13) of the passing of a navigation tag (1).

~~7~~5. Method according to claim ~~6~~4, characterised in that said transfer of the sequence of navigation tags is performed by means of a wired link (24, 25) between host unit (17) and mobile navigation unit (6) or by means of a wireless link (24, 25).

~~8~~6. Method according to any of the claims ~~2~~1-~~7~~5, characterised in that said mobile navigation unit (6) is capable of indicating (16) information on the navigation tag (1) that should be passed next.

~~9~~7. Method according to claim ~~8~~6, characterised in that said information on the navigation tag that should be passed next comprises the direction and/or distance to the next navigation tag (1), and/or an identifier of the next navigation tag (1).

~~10~~8. Method according to claim ~~9~~7, characterised in that said identifier is a colour and/or a number and/or a symbol.

~~11~~9. Method according to any of the claims ~~8~~6-~~10~~8, characterised in that said information on the navigation tag that should be passed next is indicated optically (16) and/or acoustically and/or haptically.

~~12~~10. Method according to any of the claims ~~8~~6-~~11~~9, characterised in that said acknowledgement of the passing of a navigation tag is performed automatically (13) or manually (12) and updates said indication (16) of the information on the navigation tag (1) that should be passed next.

~~13~~11. Method according to claim ~~12~~10, characterised in that said automatic acknowledgement is based on a wireless link between mobile navigation unit (6) and navigation tag (1), such as a radio (15) or optic link.

~~14~~12. Method according to claim ~~12~~10, characterised in that said manual acknowledgement is based on a wired connection between mobile navigation unit and navigation tag, or by interaction (12) between the

user of the mobile navigation unit and the mobile navigation unit (6).

~~15~~13. Method according to any of the claims ~~2~~1-~~14~~12, characterised in that the navigation tag (1) itself is capable of storing information and that said information is transferred to said mobile navigation unit when the navigation tag is passed.

~~16~~14. Method according to claim ~~15~~13, characterised in that such information comprises the position of the navigation tag (1) and/or information on the location within the navigation area (2) where the navigation tag (1) is mounted.

~~17~~15. Method according to any of the claims 1-~~16~~14, characterised in that the position of the navigation tags (1) are determined by means of a terrestrial or satellite-based positioning system (3) such as the Global Positioning System (GPS) and/or by maps and/or plans of the navigation area (4).

~~18~~16. Method according to any of the claims ~~2~~1-~~17~~15, characterised in that the mobile navigation unit (6) is integrated into or compatible to a mobile device such as a mobile phone, a personal digital assistant or a GPS receiver.

~~19~~17. Method according to any of the claims ~~4~~2-~~18~~16 as long as they refer back to claim ~~4~~2, characterised in that the mobile navigation unit (6) is integrated into or compatible to a mobile phone associated with a mobile radio system, that the core network of the mobile radio system can gain access to said host

system (17), and that said stored positions (18) and topographic information (19) is transferred to the mobile navigation unit (6) via the air interface of the mobile radio system.

~~20~~18. Method according to any of the claims ~~7~~5-~~18~~16 as long as they refer back to claim ~~7~~5, characterised in that the mobile navigation unit (6) is integrated into or compatible to a mobile phone associated with a mobile radio system, that the core network of the mobile radio system can gain access to said host system (17), and that said sequence of navigation tags is transferred to the mobile navigation unit via the air interface of the mobile radio system.

19. Method for navigation within a navigation area (2), wherein a plurality of navigation tags (1) has been mounted at predetermined positions within the navigation area (2), said method comprising the steps of:

- determining (11, 22) a sequence of navigation tags (1), which are associated with a desired route within the navigation area (2), based on the positions (7, 18) of the navigation tags (1) and on topographic information (8, 19) on the navigation area; and
- navigating said route by passing navigation tags (1) of said sequence of navigation tags, whereby passing of a navigation tag (1) is manually acknowledged (12).

~~21~~20. System for navigating in a navigation area, wherein a plurality of navigation tags (1) has been mounted at predetermined positions within said

navigation area (2), said system comprising~~characterised in that the system comprises~~:

- means for determining a sequence of navigation tags (11, 22), which are associated with a desired route within the navigation area (2), based on said positions (18) of the navigation tags (1) and on topographic information (19) on the navigation area (2); and
- means for acknowledging (12, 13) the passing of a navigation tag (1), when said route is navigated by passing navigation tags (1) of said sequence of navigation tags (1);

wherein said positions (18) are stored in a host unit (17), wherein said host unit (17) further comprises a storage unit with topographic information (19) on the navigation area (2), wherein said host unit (17) and a mobile navigation unit (6) comprise means (9, 10, 20, 21) for transferring said stored positions (18) and topographic information (19) from the host unit (17) to the mobile navigation unit (6), wherein said mobile navigation unit (6) further comprises means (7, 8) for storing said positions (18) and topographic information (19), and wherein said mobile navigation unit (6) further comprises means (11) for determining the sequence of navigation tags (1) based on said stored positions (7) and said stored topographic information (8).~~-~~

~~22. System according to claim 21, characterised in that said positions are stored (7) in a storage unit that is comprised in a mobile navigation unit (6), that said mobile unit (6) further comprises a storage unit with topographic information (8) on the navigation~~

~~area (2) and that said mobile navigation unit (6) further comprises means (11) for determining the sequence of navigation tags (1) based on the contents of both storage units (7, 8).~~

~~23. System according to claim 21, characterised in that said positions (18) are stored in a host unit (17), that said host unit (17) further comprises a storage unit with topographic information (19) on the navigation area (2), that said host unit (17) and a mobile navigation unit (6) comprise means (9, 10, 20, 21) for transferring said stored positions (18) and topographic information (19) from the host unit (17) to the mobile navigation unit (6), that said mobile navigation unit (6) further comprises means (7, 8) for storing said positions (18) and topographic information (19), and that said mobile navigation unit (6) further comprises means (11) for determining the sequence of navigation tags (1) based on said stored positions (7) and said stored topographic information (8).~~

~~24~~21. System according to claim ~~23~~20, characterised in said means (9, 10, 20, 21) for transferring said stored positions (18) and topographic information (19) are capable of establishing a wired link between host unit (17) and mobile navigation unit (6) or a wireless link.

~~25~~22. System for navigating in a navigation area, wherein a plurality of navigation tags (1) has been mounted at predetermined positions within said navigation area (2), said system comprising~~characterised in that the system comprises~~:

- means for determining a sequence of navigation tags (11, 22), which are associated with a desired route within the navigation area (2), based on said positions (18) of the navigation tags (1) and on topographic information (19) on the navigation area (2); and
- means for acknowledging (12, 13) the passing of a navigation tag (1), when said route is navigated by passing navigation tags (1) of said sequence of navigation tags (1)~~;~~.

wherein said positions are stored in a storage unit (18) that is comprised in a host unit (17), wherein said host unit (17) further comprises a storage unit with topographic information (19) on the navigation area (2), wherein said host unit (17) further comprises means (22) for determining the sequence of navigation tags (1) based on the contents of both storage units (18, 19), and wherein said host unit (17) and said mobile navigation unit (6) comprise means (24, 25) for transferring said sequence of navigation tags (1) from the host unit (17) to the mobile navigation unit (6).

~~26~~23. System according to claim ~~25~~22, characterised in that said means (24, 25) for transferring said sequence of navigation tags (1) are capable of establishing a wired link between host unit (17) and mobile navigation unit (6) or a wireless link.

~~27~~24. System according to any of the claims ~~21~~20-~~26~~23, characterised in that said mobile navigation unit (6) comprises means (16) for indicating information on the navigation tag (1) that should be passed next.

~~28~~25. System according to claim ~~27~~24, characterised in that said means for indicating information on the navigation tag that should be passed next comprises optic (16) and/or acoustic and/or haptic means.

~~29~~26. System according to any of the claims ~~27~~24-~~28~~25, characterised in that means are provided for automatic (13) or manual acknowledgement (12) of the passing of a navigation tag (1), and that means are provided to update said indication (16) of the information on the navigation tag (1) that should be passed next.

~~30~~27. System according to claim ~~29~~26, characterised in that said automatic acknowledgement is based on a wireless link between mobile navigation unit (6) and navigation tag (1), such as a radio (15) or optic link.

~~31~~28. System according to claim ~~29~~26, characterised in that said manual acknowledgement is based on a wired connection between mobile navigation unit (6) and navigation tag (1), or on means (12) enabling an interaction between the user of the mobile navigation unit (6) and the mobile navigation unit (6).

~~32~~29. System according to any of the claims ~~21~~20-~~31~~28, characterised in that the navigation tag (1) itself comprises means for storing information, and that both navigation tag (1) and mobile navigation unit (6) comprise means for transferring said information from the navigation tag (1) to the mobile navigation unit (6) when the navigation tag (1) is passed.

~~33~~30. System according to any of the claims ~~21~~20-~~32~~29, characterised in that the mobile navigation unit (6) is integrated into a mobile device such as a mobile phone, a personal digital assistant or a GPS receiver.

~~34~~31. System according to any of the claims ~~24~~21-~~33~~30 as long as they refer back to claim ~~24~~21, characterised in that the mobile navigation unit (6) is integrated into or compatible to a mobile phone associated with a mobile radio system, that the core network of the mobile radio system can gain access to said host system (17), and that said stored positions (18) and topographic information (19) are transferred to the mobile navigation unit (6) via the air interface of the mobile radio system.

~~35~~32. System according to any of the claims ~~26~~23-~~33~~30 as long as they refer back to claim ~~26~~23, characterised in that the mobile navigation unit (6) is integrated into or compatible to a mobile phone associated with a mobile radio system, that the core network of the mobile radio system can gain access to said host system (17), and that said sequence of navigation tags (1) is transferred to the mobile navigation unit (6) via the air interface of the mobile radio system.

33. System for navigating in a navigation area, wherein a plurality of navigation tags (1) has been mounted at predetermined positions within said navigation area (2), said system comprising:

- means for determining a sequence of navigation tags (11, 22), which are associated with a desired route within the navigation area (2), based on said positions (18) of the navigation tags (1) and on topographic information (19) on the navigation area (2); and
- means for manually acknowledging (12) the passing of a navigation tag (1), when said route is navigated by passing navigation tags (1) of said sequence of navigation tags (1).

~~36~~34. A computer program product directly loadable into the internal memory of a digital computer, comprising software code portions for performing the steps of any of the claims 1-19~~20~~ when said product is run on a computer.